



23641

PATENT TRADEMARK OFFICE



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Affidavit  
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Customer No.: 23641

Application No.: 09/865645

Confirmation  
No.: 4539

Filing Date: May 25, 2001

Attorney  
Docket No.: 15847/82399

First Named  
Inventor: Dennis J. Tippmann, Jr.

Group Art  
Unit: 3641

Examiner  
Name: Denise J. Buckley

Title: A GUN

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is  
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D.C. 20231

on April 18, 2003

Stacey E. Tolat

AFFIDAVIT PURSUANT TO 37 C.F.R. § 1.132

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Box AF  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I declare as follows:

1. I, Dennis Tippmann, Jr., am currently the President of Tippmann Pneumatics, Inc. I have been employed at Tippmann Pneumatics, Inc. since 1990.
2. I am the inventor of the above-referenced patent application and I am, therefore, knowledgeable about the disclosure and claims therein.

3. My experience with the paint ball gun industry includes working in the service, development, and technical assistance areas of Tippmann Pneumatics from 1990-1994. From 1994 to current, I have been developing, prototyping and producing various paint ball guns and gun technology. I have several patents related to paint ball guns to my name, including U.S. Patent No. 5,722,383, issued on March 3, 1998, U.S. Patent No. 6,324,779, issued on December 4, 2001, and U.S. Patent No. 6,526,685, issued on March 4, 2003.

4. I understand that in the Office Action dated January 22, 2003, in the above-referenced application, the Examiner has rejected the claims as being anticipated by U.S. Patent No. 4,345,578 (hereinafter "the '578 patent"). It is my understanding that the basis for this rejection is that the Examiner believes no distinction exists between the firing mechanism disclosed in the '578 patent and the "paint ball firing mechanism" claimed in the above-referenced patent application.

5. Column 1, lines 57 through 60, of the '578 patent states that the firing mechanism for the projecting device is disclosed in U.S. Patent No. 4,094,294 (hereinafter "the '294 patent") and Patent Application Ser. No. 894,162, now U.S. Patent No. 4,212,284 (hereinafter "the '284 patent"). Because the distinctions between the firing mechanisms of the ball projecting devices of the '284 and '294 patents are nominal when compared to the paint ball gun firing mechanism, for purposes of this analysis, the firing mechanism of the ball projecting device disclosed in the '294 patent will be compared to the "paint ball gun firing mechanism."

6. Accompanying this declaration is a Digital Video Disc ("DVD") containing an animated cutaway view of a paint ball gun showing and describing the operation of a typical paint ball firing mechanism. Also, accompanying this declaration is a pictorial side-by-side comparison chart of a paint ball gun firing mechanism of the type disclosed in the application and the firing mechanism of the ball projecting device from the '294 patent.

7. As described on the DVD and the comparison chart, the operation of an illustrative "paint ball firing mechanism" is as follows:

Step 1     The paint ball enters the gun bore and is positioned against a stop. The stop keeps the ball in place before it is fired. In addition, this illustrative stop is resilient so the ball can be gently moved past it and fired without substantial risk of rupture. Except for the stop, the paint ball is kept free of compression, frictional or other forces that might cause it to rupture either prior to or during the firing sequence. Because paint balls are frangible objects, any forces, such as pressure

or friction, that act on it, may cause the fragile skin of the ball to break, thereby causing a rupture. Once the paint ball is in place, the trigger can be pulled to initiate the firing sequence.

- Step 2: Once the trigger is pulled, a slide moves forward. In this example, a link bar, which connects the slide to a funnel, moving the funnel forward as well. Because the funnel also abuts the paint ball, movement of the funnel causes the paint ball to move forward past the stop. The paint ball is moved gently past the stop so it doesn't act as an obstruction when the paint ball is fired. Such an obstruction may cause the paint ball to inadvertently rupture during firing, so it is moved out of the way before the fluid fires the paint ball. This illustrative stop is made from a resilient polymer so it can be moved out of the way prior to firing and reset itself in anticipation of the next paint ball. In addition, because the ball is being moved over the stop at a slow rate, friction or pressure between the ball and the stop is negligible.
- Step 3: With the paint ball positioned in the bore unobstructed, fluid is released through the funnel to propel the paint ball.
- Step 4: Fluid is expelled from the funnel, propelling the paint ball through the bore.

8. In sum, a paint ball firing mechanism fires the paint ball without any obstruction in the barrel that might cause a compression or frictional force on the paint ball, causing it to rupture before exiting the bore.

9. Though variations in "paint ball firing mechanisms" exist, a common denominator is that the paint ball is handled very carefully in the firing mechanism so as to reduce the risk of rupture before exiting.

10. The operation of the firing mechanism of the '294 patent is described in Column 7, lines 40 through 68, and Column 8, lines 1 through 22. The operation of this firing mechanism involves applying a force against a ball by using air pressure in the forward direction, and then restraining the ball from passing through the barrel by an air-filled detent. Once sufficient pressure is exerted on the ball, a triggering mechanism is engaged which causes the detent to deflate, thereby releasing the ball through the barrel.

11. As shown in Step 1 (Fig. 7 of the '294 patent), air pressure moves the ball through elbow 28 to wedge against detent 65. Detent 65 is of a resilient material which inflates with air. As the pressure within the inner barrel 28 increases, the pressure on the ball increases as well as

pushing it farther against detent 65. The increased pressure against the ball causes an increase in the air pressure within the detent 65. This increased pressure is maintained by a ball check 75 positioned against the valve seat 70a. The pressure in the inner barrel 28 is also exerted against the lower face 80a of spool valve 80. This pressure moves spool valve 80 in an outward direction against the bias of the spring 81. As the pressure increases on spool valve 80, it gradually moves outwardly until an annular notch 82 is in a position to connect the vent portions 71, 71a. When this occurs, the pressure within the detent 65 is immediately released, deflating same, causing the ball to be propelled through inner barrel 28. This is the condition shown in Fig. 8. In addition, the '294 patent specifically notes:

that bias exerted by the spring 81 against the spool valve 80 directly increases the pneumatic pressure exerted against the ball at the time of ejection. As the pressure against the ball is directly related to the velocity at which the ball is ejected, the muzzle velocity of the ball is thereby directly regulated by varying the bias action of the spring 81 against the spool valve 80.

(See column 8, lines 3 through 10.)

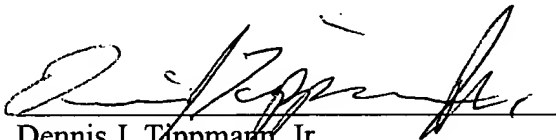
12. Accordingly, the firing mechanism under this '294 patent requires that a compression force be exerted on the ball to keep it stationary until so much pressure is built up that vents are opened and the ball is ejected. Furthermore, performance of the firing mechanism is dependent and enhanced by how much pressure is exerted on the ball. Balls such as tennis balls and baseballs can withstand such a compression force.

13. It is believed that the compressive force, as required by the '294 patent, however, would rupture a fragile paint ball. The paint ball firing mechanism specifically positions the paint ball in the bore so that no damaging compressive forces are exerted on it. It is not believed possible to apply high compressive forces against a paint ball and expect it to fire through the bore without rupturing. The firing mechanism of the '294 patent, thus, violates one of the most important design requirements for a "paint ball firing mechanisms," and that is that the firing mechanism cannot be such that the forces or combination of forces used to propel the paint ball are of the type that substantially increase the likelihood the paint ball will rupture before it exits the bore.

14. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false

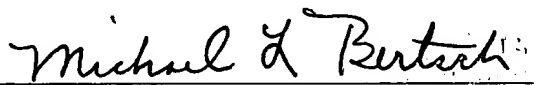
statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Declared at Fort Wayne, Indiana, this 7 day of April, 2003.

  
Dennis J. Tippmann, Jr.

State of Indiana )  
County of Allen ) ss:

On this 7 day of April, 2003, before me, a Notary Public in and for the County and State aforesaid, appeared Dennis J. Tippmann, Jr., to me personally known to be the same person whose name is subscribed to the foregoing instrument, and acknowledged that he executed said instrument as his free and voluntary act and for the uses and purposes therein expressed.

  
Notary Public

Printed Name

My Commission Expires: \_\_\_\_\_

County of Residence: \_\_\_\_\_

